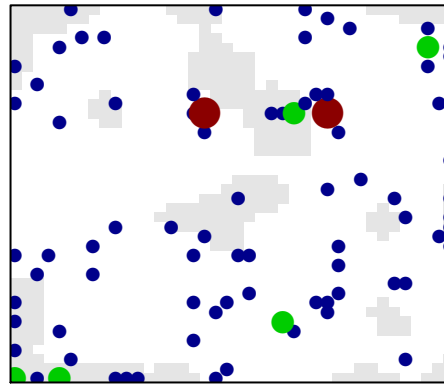
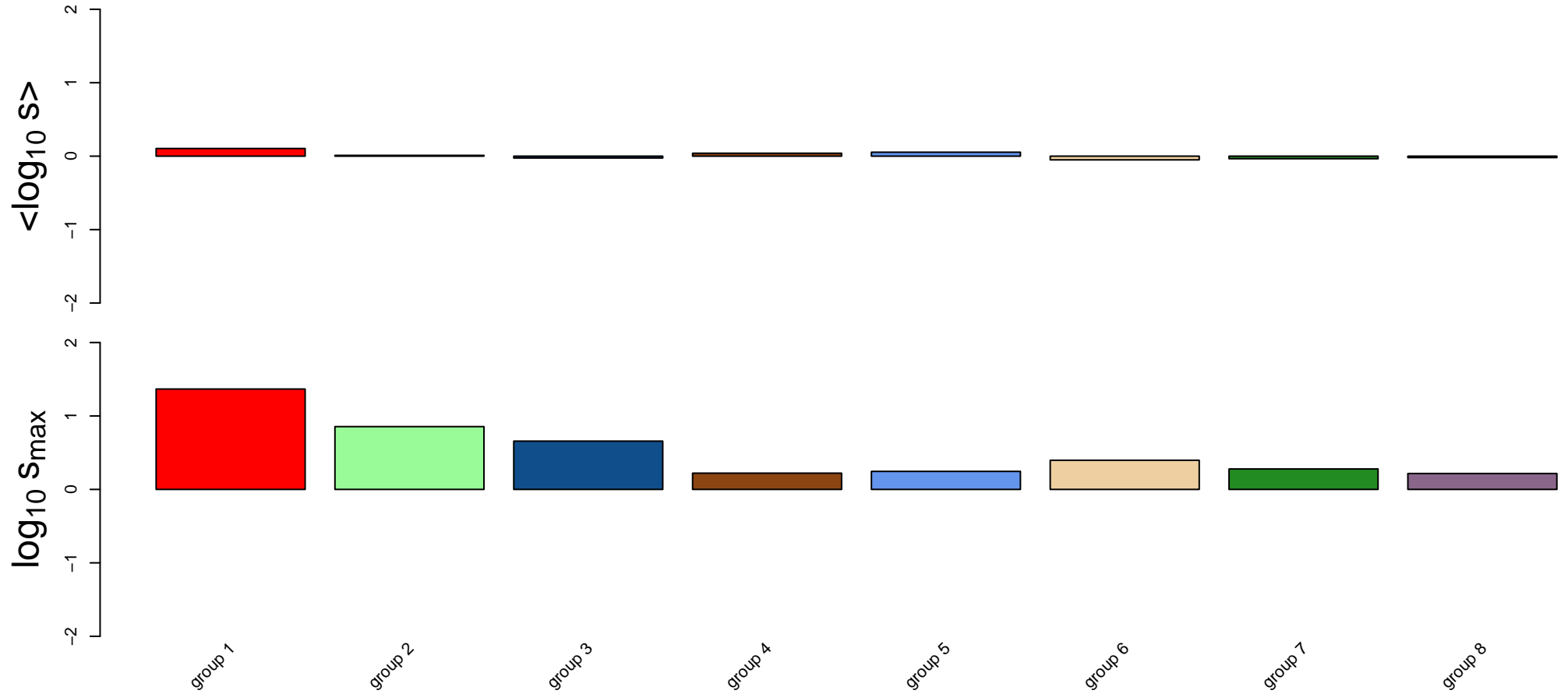
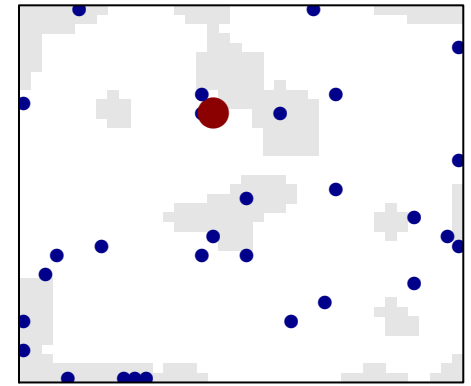


Thyroid cancer

all genes



sink node genes



Thyroid_cancer genes with data

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

MAP2K1

MAPK1

DNA

Proliferation
Survival

MAPK signaling pathway

Thyroid follicular epithelial cell

HRAS

BRAF

MAP2K1

MAPK1

DNA

Proliferation
Survival

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation

Genetic alterations

Oncogenes :

RET/PTC1, RET/PTC3,
TRK (TRM3/NTRK1),
TRK-T1, T2 (TPR/NTRK1),
TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

Downregulation

CDH1

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

DNA

LEF1

DNA

MYC

CCND1

Proliferation

Thyroid_cancer
sink nodes

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

+p

BRAF

+p

MAP2K1

+p

MAPK1

MAPK signaling pathway

DNA

Proliferation
Survival

Thyroid follicular epithelial cell

HRAS

BRAF

+p

MAP2K1

+p

MAPK1

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation
Survival

DNA

Proliferation

Genetic alterations

Oncogenes :

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TRK-T1, T2 (TPR/NTRK1),
TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

Downregulation

CDH1

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

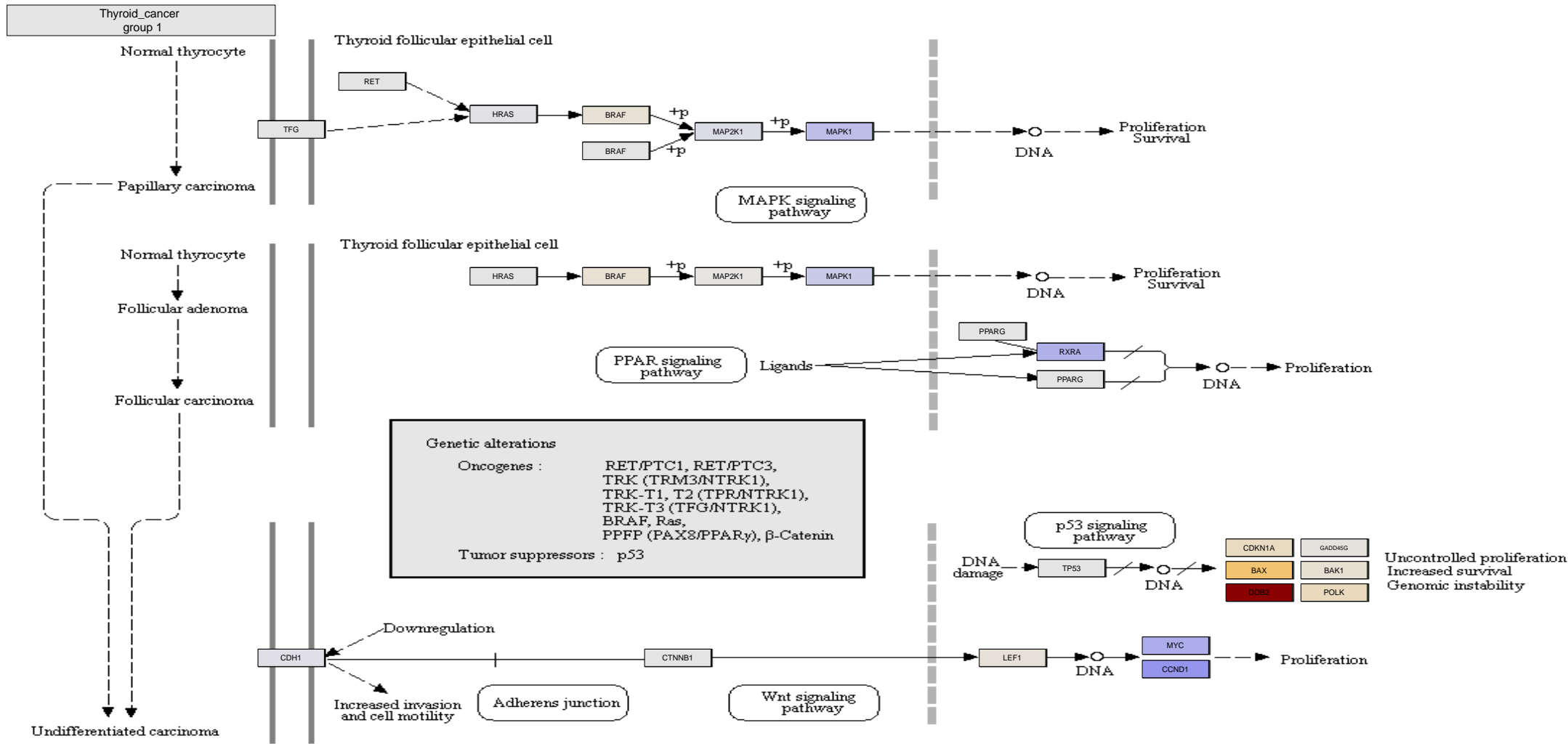
LEF1

DNA

MYC

CCND1

Proliferation



Thyroid_cancer group 2

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

+p

MAP2K1

+p

MAPK1

DNA

Proliferation
Survival

MAPK signaling pathway

Thyroid follicular epithelial cell

HRAS

BRAF

+p

MAP2K1

+p

MAPK1

DNA

Proliferation
Survival

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation

Genetic alterations

Oncogenes :

RET/PTC1, RET/PTC3,
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TRK-T1, T2 (TPR/NTRK1),
TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

Downregulation

CDH1

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

LEF1

DNA

MYC

CCND1

Proliferation

Thyroid_cancer group 3

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

MAP2K1

MAPK1

MAPK signaling pathway

DNA

Proliferation
Survival

Thyroid follicular epithelial cell

HRAS

BRAF

MAP2K1

MAPK1

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation
Survival

DNA

Proliferation

Genetic alterations

Oncogenes :

RET/PTC1, RET/PTC3,
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TRK-T1, T2 (TPR/NTRK1),
TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

Downregulation

CDH1

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

LEF1

DNA

MYC

CCND1

Proliferation

Thyroid_cancer group 4

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

+p

BRAF

+p

MAP2K1

+p

MAPK1

MAPK signaling pathway

DNA

Proliferation
Survival

Thyroid follicular epithelial cell

HRAS

BRAF

+p

MAP2K1

+p

MAPK1

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation
Survival

DNA

Proliferation

Genetic alterations

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BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

CDH1

Downregulation

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

LEF1

DNA

MYC

CCND1

Proliferation

Thyroid_cancer group 5

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

MAP2K1

MAPK1

+p

+p

+p

+p

DNA

Proliferation
Survival

MAPK signaling pathway

Thyroid follicular epithelial cell

HRAS

BRAF

MAP2K1

MAPK1

+p

+p

DNA

Proliferation
Survival

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation

Genetic alterations

Oncogenes :

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TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

Downregulation

CDH1

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

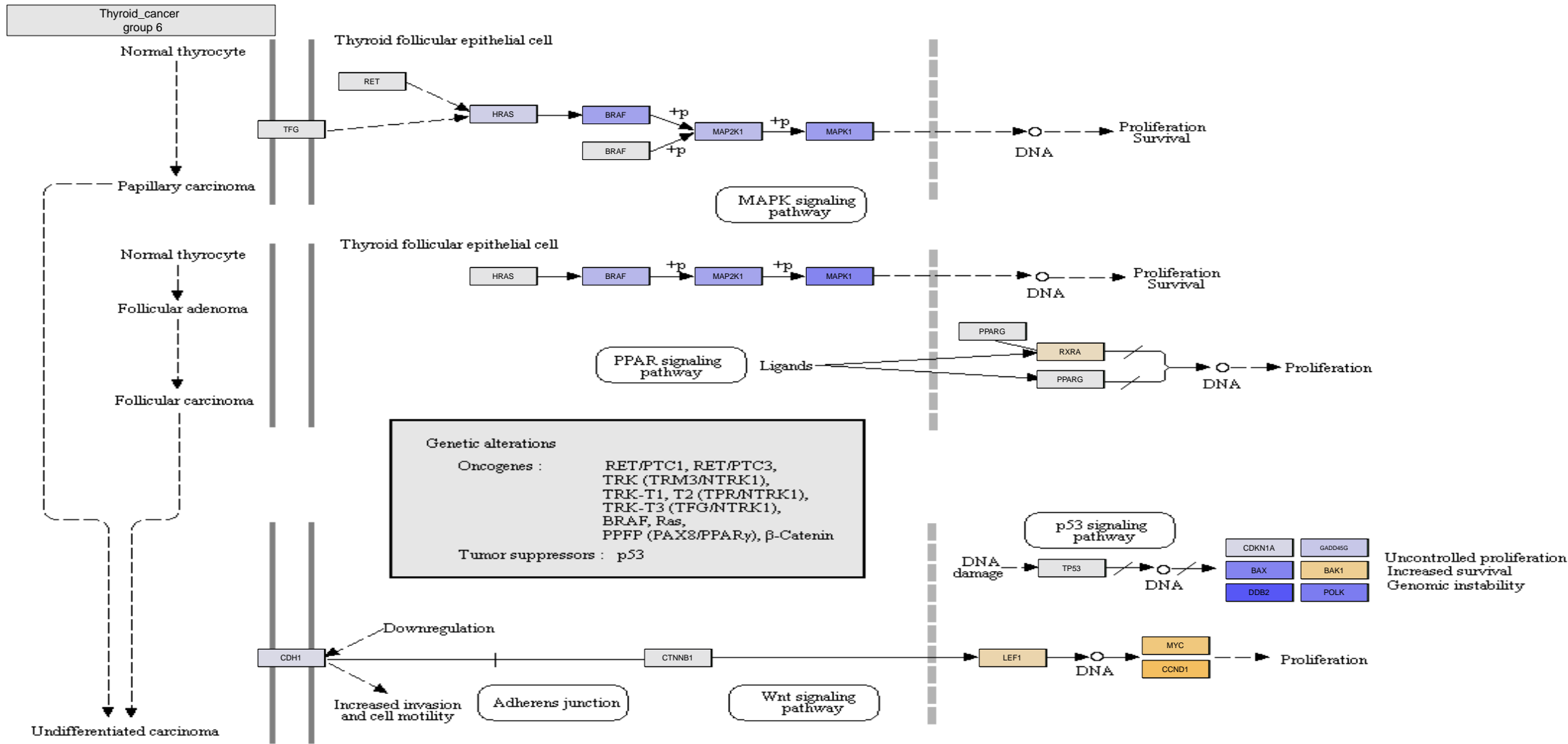
LEF1

DNA

MYC

CCND1

Proliferation



Thyroid_cancer group 7

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

+p

BRAF

+p

MAP2K1

+p

MAPK1

MAPK signaling pathway

DNA

Proliferation
Survival

Thyroid follicular epithelial cell

HRAS

BRAF

+p

MAP2K1

+p

MAPK1

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation
Survival

DNA

Proliferation

Genetic alterations

Oncogenes :

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TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

p53 signaling pathway

DNA damage

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

Downregulation

CDH1

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

LEF1

DNA

MYC

CCND1

Proliferation

Thyroid_cancer group 8

Normal thyrocyte

Papillary carcinoma

Normal thyrocyte

Follicular adenoma

Follicular carcinoma

Undifferentiated carcinoma

Thyroid follicular epithelial cell

RET

TFG

HRAS

BRAF

MAP2K1

MAPK1

MAPK signaling pathway

DNA

Proliferation
Survival

Thyroid follicular epithelial cell

HRAS

BRAF

MAP2K1

MAPK1

PPAR signaling pathway

Ligands

PPARG

RXRA

PPARG

DNA

Proliferation
Survival

Proliferation

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TRK-T3 (TFG/NTRK1),
BRAF, Ras,
PPFP (PAX3/PPARγ), β-Catenin

Tumor suppressors : p53

CDH1

Downregulation

Increased invasion
and cell motility

Adherens junction

CTNNB1

Wnt signaling pathway

DNA damage

p53 signaling pathway

TP53

DNA

CDKN1A

GADD45G

BAX

BAK1

DDB2

POLK

Uncontrolled proliferation
Increased survival
Genomic instability

LEF1

DNA

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CCND1

Proliferation